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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/421,217	10/20/1999	HIDEKI TAKAHASHI	0057-2533-2Y	3815

7590 07/30/2002

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EXAMINER

LOKE, STEVEN HO YIN

ART UNIT PAPER NUMBER

2811

DATE MAILED: 07/30/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	09/421,217		TAKAHASHI, HIDEKI	
	Examiner		Art Unit	
	Steven Loke		2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 24 May 2002.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 22-39 is/are pending in the application.

4a) Of the above claim(s) 27-39 is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 22-26 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some * c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892) 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6) <input type="checkbox"/> Other: _____
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1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 22-26 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 5-7 and 11 of U.S. Patent No. 5,751,024 (Takahashi). Although the conflicting claims are not identical, they are not patentably distinct from each other because both of them disclose a semiconductor device comprising: a first semiconductor layer of a first conductivity type having first and second main surfaces on opposite sides thereof; a second semiconductor layer of a second conductivity type provided on the first main surface of the first semiconductor layer; a third semiconductor layer of the second conductivity type higher in an impurity concentration and thinner than the second semiconductor layer, and provided on a surface of the second semiconductor layer; a fourth semiconductor layer of the first conductivity type provided on a surface of the third semiconductor layer, wherein the third semiconductor is interposed between the second semiconductor layer and a bottom of the fourth semiconductor layer and is in direct contact with said second semiconductor layer; a fifth semiconductor layer of the second conductivity type

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selectively provided in a surface of the fourth semiconductor layer and opposing the third semiconductor layer through the fourth semiconductor layer; a first main electrode disposed across and connected with surfaces of the fourth and fifth semiconductor layers; a second main electrode provided on the second main surface of the first semiconductor layer; an insulating film provided on a portion of the fourth semiconductor layer interposed between the third and fifth semiconductor layers; a control electrode facing the portion through the insulating film so that the portion forms a channel region; the first main electrode not contacting any other semiconductor layer than the fourth and fifth semiconductor layers. In one embodiment of Takahashi's device and the present invention, the second semiconductor layer extends through the first semiconductor layer and is partially exposed in the second main surface of the first semiconductor layer. In another embodiment of Takahashi's device and the present invention, a sixth semiconductor layer of the second conductivity type higher in an impurity concentration than the second semiconductor layer provided between the first and second semiconductor layers; the sixth semiconductor layer extends through the first semiconductor layer and is partially exposed in the second main surface of the first semiconductor layer.

Since Takahashi discloses an insulated control electrode in the insulated gate semiconductor device, there is only one channel region in the device of Takahashi.

3. Applicant's arguments filed 5/24/02 have been fully considered but they are not persuasive.

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It is urged, in page 5 of the remarks, that claim 22 of the present divisional application and claim 11 of U.S. patent 5,751,024 are different in structure, since Claim 11 of U.S. patent 5,751,024 defines an IGBT having a trench gate, whereas Claim 22 of the present divisional application has been made assuming that an IGBT has a flat gate. However, the claim language of claim 22 of the present application also read on an IGBT having a trench gate. Therefore, both claim 11 of U.S. patent 5,751,024 and claim 22 of the present application disclose the same device.

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Loke whose telephone number is (703) 308-4920. The examiner can normally be reached on 7:50 am to 5:20 pm.

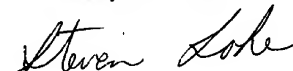
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (703) 308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

sl
July 26, 2002

Steven Loke
Primary Examiner

A handwritten signature in cursive script that reads "Steven Loke".